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to be secured by some such as the foregoing plan.

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GRANA DE BRASILE

TO THE EDITOR OF SCIENCE: I should be glad to learn what grain and what region were meant by "grana de Brasile" in the 1193 commercial treaty between the "Bononienses" and "Ferrarienses" copied by Muratori into Vol. 2 of his "Antiquitates Italicae," p. 844. He mentions (p. 488) the repetition of the same item in a "charta" of 1198.

Capmany's Spanish work on the early shipping arts, etc., of Barcelona copies in Vol. 2 several thirteenth century Catalan tariff lists, three of which (the earliest 1221) for that and other parts, respectively mention, among miscellaneous commodities, "Carrega de Brasil," "faix de bresil" and "cargua de brazil." The usual impost seems to have been two solidos. One of these lists mentions "grana" unqualified. There seems nothing to indicate what material was or was not meant, except the slight negative value of that reference.

It is interesting to see the variations of orthography in these lists, duplicating those of the Brazil west of southern Ireland on the fourteenth and fifteenth century maps, though Fra Mauro adds berzil and the more southern apparently imitative Brazils (Terciera and others) exhibit further vagaries of spelling. The first appearance of Brazil in geography seems to be, so far as reported, south of west of Limerick on the 1325 map of Dalorto.

Was it thence that the "grain" of 1193 and 1198 was supposed to have come? It can hardly be an error for dyes or dye woods, though both grain and dye wood may have been associated with the idea and name of Brazil, as we still write both India-ink and India-rubber.

W. H. BABCOCK

CONCERNING GOVERNMENT APPLICATION BLANKS

TO THE EDITOR OF SCIENCE: In former times when one wished to institute a comparison between the various classes of liars, he was accustomed to say "he lies like a horse-thief," or "he lies like a tombstone." Now, however,

those of us who are connected with the teaching profession are given to saying "he lies like a testimonial."

It seems a little too bad that one's natural tendency towards mendacity should be accelerated by no less a person than Uncle Sam. Some time ago I was asked to fill out a blank for an applicant for a teaching position in the Philippine Islands, and among other questions asked me were the following:

8. Is the applicant now, or has he ever been, addicted to the use of intoxicating beverages, morphine or opium?

14. Can you state positively that the applicant's character is unimpeachable, and his reputation for sobriety and morality unquestionably good?

The printed directions state that all questions must be answered and that to say "I don't know" is unsatisfactory. Now I feel confident that the young lady who did me the honor to ask me for a testimonial has not been addicted to the use of intoxicating beverages, morphine, or opium; but I could not make this statement as a positive fact about her or any other acquaintance of mine. Again, I believe the applicant's character to be unimpeachable, but I can not state positively that such is the case. This is a world of surprises and disappointments. I am most optimistic, but not sufficiently so to answer these questions in the affirmative. May we not hope that our new president-elect will take measures to relieve the tender consciences of college professors from the great strain that these government blanks put upon them?

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SCIENTIFIC BOOKS

*Richtlinien des Entwicklungs- und Vererbungsproblems.* By ALFRED GREIL, Professor of Anatomy, Innsbruck. Jena, Gustav Fischer. 1912. 2 parts.

The crude evolutionism of Bonnet gave place to the epigenesis of C. F. Woeffl, and this, too indefinite to give sufficient explanation of the phenomena of cell differentiation, adaptation and inheritance, in turn was supplanted by a newer preformationism, at first

also rather crude, but later becoming more and more refined, until finally it has become almost if not quite metaphysical. To Professor Greil, however, preformationism in any of its forms is a stone of stumbling and a rock of offense, and in the two volumes now before us he attempts to recall the feet of the faithful to the paths of epigenesis, by what he terms, with insistence, a formal or descriptive analysis of the phenomena of development.

He starts, however, with a basic proposition, "the true and fundamental principle of rational comparative embryology," which he expresses in the words of Haeckel, "Aus Gleichartigem Ungleichtartiges." He is thus an epigenesist of the epigenesists and his method of analysis is to proceed from this assumed truth to reconstruction of the embryological history. The first part of the treatise is practically a reprint of a paper recently published in the *Zoologische Jahrbücher*<sup>1</sup> and is a description of the phenomena of development as seen by a thorough-going epigenesist, who is also a firm believer in the biogenetic law. In the second part special problems, such as adaptation and variability, inheritance and sex-determination, are similarly surveyed and in a somewhat extended appendix the various theories of Roux, R. Hertwig, Rabl, Mehnert, Kassowitz, Fick and Godlewski are reviewed and criticized, with the same richness of dialectic that pervades the entire work.

For the author wields the pen of a ready writer, which unfortunately frequently leads him into unnecessary repetitions and verbosities, which extend over seven hundred pages what might have been clearly and forcibly presented in perhaps half the space, to the greater comfort and satisfaction of the reader. But even with due allowance for redundancies, the ground covered is so extensive as to preclude the possibility of a review or even a bare enumeration of the various questions discussed, and it must suffice to repeat that the main thesis of the work is the all-sufficiency

<sup>1</sup> A. Greil, "Ueber allgemeine Richtlinien des Entwicklungs- und Vererbungsprobleme," *Zool. Jahrb.*, Bd. XXXI., Abt. für allgem. Zool. und Physiol. der Tiere, 1912.

of epigenesis. That is the one and only power, and formal analysis is its prophet. Professor Greil presents a strong case, but it must be confessed that he does not and, indeed, in the present state of our knowledge, he can not yet remove the difficulty that has forced so many thinking zoologists into preformationism, namely, an explanation of how differentiation is possible by epigenesis. One may glibly talk of cellular interaction, of effects produced by quantity and quality of the food and by the outside environment, and of the determination resulting for the chemical constitution of the ovum, but until we have concrete evidence of how these or other factors act in the production of differentiation epigenesis will continue to be no explanation. And, after all, if the last named of the above factors be admitted, is it not merely carrying preformationism back to its ultimate limits and making it identical with epigenesis?

J. P. McM.

*Origin and Antiquity of Man.* By G. FREDERICK WRIGHT, D.D., LL.D., F.G.S.A. Oberlin, Ohio, *Bibliotheca Sacra* Company. 1912. Pp. xx + 547. Illustrated.

As an introduction Professor Wright discusses the origin and antiquity of the earth. He inclines toward a very moderate estimate of the length of geologic time and hence of the human period, which began when man became a tool-user. To him the ancient civilizations of Babylonia, Egypt, Crete and Central Asia were of a high order. These rare blossoms in the springtime of history were each nurtured by exceptional geniuses instead of being the product of a gradual unfolding.

The diversity of languages is invoked as an aid in the measurement of man's antiquity. In view of the rapidity with which children when isolated invent a language of their own, the author believes the evidence of an extremely great antiquity of the human race drawn from the diversity of language at the dawn of history to be far from conclusive.

In the chapter on the "Origin of the Races of Europe" (p. 105), the author states that